

REMARKS

In the June 17, 2003 Office Action, of pending claims 1-21, claims 1-21 are rejected under 35 U.S.C. §103(a).

By this Amendment, claims 1, 9 and 11 are amended and claims 22-24 are added, leaving claims 1-24 pending with claims 1, 9 and 15 being independent.

Reconsideration and allowance of the above-identified application are respectfully requested.

Claims 1, 9 and 11 are amended solely to avoid possible 35 U.S.C. § 112, second paragraph rejections and not to avoid any known or cited prior art.

Rejections Under 35 U.S.C. §103(a)

Claims 1-4 stand rejected under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent No. 4,718,418 to L'Esperance, Jr. in combination with of U.S. Patent No. 4,903,695 to Warner et al. and U.S. Patent No. 6,264,665 to Yu et al. The Examiner contends that the combination of these three references renders obvious all of the elements of these claims.

Applicant respectfully traverses this rejection.

The combination of the L'Esperance, Warner and the Yu patents does not disclose, teach or suggest all the elements of even independent claim 1. Clearly, the combination of these three references does not disclose, teach or suggest inserting an inlay or a lens under a flap, ablating the lens or using a robotic arm to position an inlay relative to the cornea.

The L'Esperance Patent

Clearly the L'Esperance patent does not disclose, teach or suggest all the elements of independent claim 1. Independent claim 1 recites, among other things, method of correcting the refractive error in a cornea of an eye, including separating a layer of the cornea to form first and second internal surfaces, ablating the lens and controlling a robot to insert an intracorneal blank proximate to at least one of the first and second internal surfaces.

The L'Esperance patent discloses using a laser to modify the external curvature of the cornea to achieve a change in optical properties. Additionally, the L'Esperance patent discloses transplanting an external portion of the live cornea with a corneal insert. L'Esperance does not disclose inserting an inlay or a lens under a flap, ablating the lens or using a robotic arm to position an inlay relative to the cornea.

The Warner patent

The Warner patent discloses forming a lenticule flap in the cornea so that a controlled tissue-ablating laser radiation can be applied solely to the freshly cut part of the cornea that is left after severing the lenticule. However, the Warner patent does not disclose, teach or suggest inserting an inlay or a lens under a flap, ablating the lens or using a robotic arm to position an inlay relative to the cornea.

The Yu patent

The Yu patent teaches using an eotactic manipulator and/or a tool transition table to position a tool, so that the tip of the tool can be positioned at any desired location within the eye

and subsequently worked or operated to perform ultramicrosurgery. The Yu patent does not disclose, teach or suggest inserting an inlay or a lens under a flap, ablating the lens or using a robotic arm to position an inlay relative to the cornea.

None of the cited patents alone or in combination actually discloses, teaches or suggests inserting an inlay or a lens under a flap, or using a robotic arm to position an inlay relative to the cornea. The L'Esperance patent discloses ablating a transplanted cornea to achieve the desired corneal curvature and the Warner patent teaches ablating a portion of the cornea after the lenticule is severed. There is clearly no disclosure or suggestion that an inlay or lens could be positioned between two surfaces of the cornea and ablating the lens.

Additionally, the Yu patent teaches using an eotactic manipulator and/or a tool transition table to position a tool, so that the tip of the tool can be positioned at any desired location within the eye and subsequently worked or operated to perform ultramicrosurgery. The Yu patent does not disclose, teach or suggest using a robotic arm to position an inlay relative to the cornea. Therefore, none of the cited patents alone or in combination actually discloses or suggest all of the elements of in claim 1, namely using a robotic arm to position an inlay relative to the cornea.

To establish *prima facie* obviousness, the prior art must disclose, teach or suggest all of the claim limitations. MPEP §2143.03. Clearly this combination of prior art does not specifically teach or suggest using a robotic arm to position an inlay relative to the cornea or inserting an inlay or lens between two corneal surfaces.

Therefore, Applicant submits that independent claim 1, and its respective dependent claims 2-8 are allowable over the cited prior art.

Claims 1 and 5-8 stand rejected under 35 U.S.C. §103(a) as being unpatentable over the L'Esperance patent in combination with the Warner and Yu patents and further in view of the publication Corneal Laser Surgery edited by Salz ("Salz reference"). Applicant respectfully traverses this rejection.

The examiner alleges that the Salz reference teaches marking the optical axis of a flap to assure the position of the flap and smoothing the flap after being replaced in a keratome procedure. However, the Salz reference does not overcome the deficiencies of the L'Esperance, Warner and Yu patents. Namely, the Salz reference does not disclose, teach or suggest inserting an inlay or a lens under a flap, or using a robotic arm to position an inlay relative to the cornea.

Furthermore, the Salz reference does not teach marking a blank, as recited in claim 5, only marking a flap to ensure proper replacement thereof. There is no disclosure of an inlay in the Salz reference.

Therefore, Applicant submits that independent claim 1, and its respective dependent claims 2-8 are allowable over the cited prior art.

Claims 9-14 and 15-21 stand rejected under 35 U.S.C. §103(a) as being unpatentable over the L'Esperance patent in combination with the Warner and Yu patents and Salz reference further in view of U.S. Patent No. 6,208,458 to Galvanauskas et al. The Examiner alleges that the Galvanauskas patent teaches using ultrashort pulses to form corneal flaps. Applicant respectfully traverses this rejection.

Applicant submits that since independent claims 9 and 15 recite subject matter substantially similar to claim 1, they are allowable for the reasons stated above. For example,

claim 9 recites among other things a method including controlling a first automated device to aim an ultrashort pulse laser at the cornea of the eye, controlling a second automated device to position an intracorneal lens on an internal corneal surface and aiming an excimer laser at the intracorneal implant using a third automated device. Claim 15 recites, among other things, a system, including an ultrashort pulse laser coupled to a first robotic arm and adapted to separate a layer of the cornea into first and second internal surfaces, a lens dispensing device coupled to a second robotic arm and adapted to position a lens on an internal surface of the cornea, and a second laser coupled to a third robotic arm and adapted to ablate a portion of the lens.

Furthermore, the Galvanauskas patent does not overcome the above deficiencies of the L'Esperance, Warner, Yu patents and the Salz reference.

New Claims 22-24


New claims 22-24 are allowable for the reasons stated above, since they are dependent upon claims 1, 9 and 15, respectively. Additionally, each of these claims recites further elements that distinguish them from the prior art. For example, each of these claims recites that the blank or lens is ablated or ablatable without substantially ablating the cornea.

Furthermore, the cited prior art cannot be combined to reject these claims. L'Esperance clearly uses a corneal transplant to replace a removed portion of the cornea. If the cornea is not ablated, as recited in these claims, there is no danger that the Bowman's membrane would be removed or damaged during the procedure. Therefore, the Examiner's motivation to combine these references is not appropriate for dependent claims 22-24.

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Prompt examination on the merits is respectfully requested.

Respectfully submitted,



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Dated: September 17, 2003